

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listing of claims in the application.

LISTING OF CLAIMS:

1. (Currently Amended) An information recording/reproducing method comprising the step of:

~~partially heating a recording medium applying a magnetic field to form a magnetic recording domain whose magnetic wall orientation is along a curve of the thermal distribution a thermal distribution direction of the partially heated region in a magnetic recording layer of the recording medium, while applying a magnetic field to the vicinity of the partially heated region heating partially a recording medium for storing an information with the recording magnetic domain of a magnetic recording layer on a substrate surface, and~~

~~scanning on the recording medium so that a magnetic flux from the magnetic recording domain is detected to reproduce by a magnetic flux detecting means whose long magnetic domain is in accord with the magnetic wall orientation of the magnetic recording domain,~~

~~wherein an orientation of the magnetic domain is aligned with respect to the longitudinal direction of the magnetic flux detecting means in accordance with the position of recording~~

~~an orientation of a longitudinal direction of the magnetic flux detecting means is changed in accordance with a radial position of the magnetic recording domain to be detected, and the thermal distribution direction is changed in accordance with the radial position of the magnetic recording domain to be formed by the partial heating of the recording medium so that the magnetic wall orientation of the magnetic recording domain is aligned with respect to the longitudinal direction of the magnetic flux detecting means.~~

2. (Currently Amended) An information recording/reproducing apparatus ~~for a recording medium for storing an information with a recording magnetic domain~~

in a magnetic recording layer formed on a substrate of a recording medium,
comprising,

heating means for heating partially the magnetic recording layer~~the recording medium~~,

magnetic field applying means for applying a magnetic field to the vicinity of an area heated by the heating means, and

magnetic flux detecting means for detecting a magnetic flux with scanning on the recording medium,

~~characterized in that a tracking position of the heating means is changed relatively with respect to a tracking position of the magnetic flux detecting means, in accordance with a radial position of a track~~

wherein the magnetic domain is formed so that the magnetic domain wall is along a curve of the thermal distribution of the region heated by the heating means, and a difference between a radial position of the heating means when heating partially the recording medium to form the recording-magnetic domain and a radial position of the magnetic flux detecting means when detecting the magnetic flux generated by the recording-magnetic domain is changed in accordance with a radial position of a recording track to be scanned when heating partially the recording medium to form the recording-magnetic domain and detecting the magnetic flux generated by the recording-magnetic domain so that a magnetic wall orientation of the magnetic recording domain is aligned with respect to formed along a longitudinal direction of the magnetic flux detecting means at each recording track to be scanned during recording/reproducing.

3. (Currently Amended) An information recording/reproducing apparatus ~~for a magnetic recording medium for storing an information with a recording magnetic domain in a magnetic recording layer formed on a substrate surface~~ of a recording medium, comprising,

heating means for heating partially ~~the recording medium~~ magnetic recording layer, magnetic field applying means for applying a magnetic field to the vicinity of an area heated by the heating means, and a swing-arm-shaped supporting portion on which magnetic flux detecting means for detecting a magnetic flux on the recording medium is mounted, ~~characterized in that a shape of the area of the~~

~~magnetic recording medium heated by the heating means rotates in accordance with a rotational direction of the swing arm, and a longitudinal direction of the heated area by the heating means is substantially parallel to a longitudinal direction of the magnetic flux detecting means~~

wherein the magnetic domain is formed so that the magnetic domain wall is along a curve of the thermal distribution of the region heated by the heating means, and an orientation of a thermal distribution generated by the partial heating of the recording medium for forming the recording magnetic domain is rotated in accordance with a radial position of the heating means when heating partially the recording medium to form the magnetic domain of the recording magnetic domain to be formed so that a magnetic wall orientation of the recording magnetic domain is aligned with respect to formed along a longitudinal direction of the magnetic flux detecting means at each recording track to be scanned during recording/reproducing.

4. (Original) An information recording/reproducing apparatus according to claim 3, characterized in that a longitudinal direction of the heated area by the heating means is substantially parallel to a longitudinal direction of the magnetic flux detecting means.

5. (Previously Presented) An information recording/reproducing apparatus according to claim 3, characterized in that
the heating means is a light emitting means for forming a minute light spot, at least a part of the light emitting means is formed on the swing arm, and
an optical element is arranged on an optical path of the light emitting means to project the minute light spot on the recording medium and elongate the light spot in a swing arm moving direction.

6. (Previously Presented) An information recording/reproducing apparatus according to claim 3, characterized in that a tracking position of the heating means is changed relatively with respect to a tracking position of the magnetic flux

detecting means, in accordance with a radial position of a track scanned on the disk.

7. (Previously Presented) An information recording/reproducing apparatus according to claim 2, characterized in that an optimum relative tracking position is obtained through a test writing and a test reading when the tracking position of the heating means is relatively changed with respect to the tracking position of the magnetic flux detecting means in accordance with a radial position of the track scanned on the disk.

8. (Previously Presented) An information recording/reproducing apparatus and information recording medium according to claim 2, characterized in that the recording medium has an information recording layer on a substrate surface including recess-and-projection structure on the surface, and the magnetic flux detecting means scans approximately a center of a circumferential projection area of the recording medium.

9. (Original) An information recording/reproducing apparatus according to claim 8, using the recording medium according to claim 8, characterized in that an angle of the recess-and-projection structure with respect to the track direction is substantially in accord with an angle of the magnetic flux detecting means with respect to the track direction, at each position on the recording medium.

Claims 10-11 (Cancelled)

12. (Previously Presented) An information recording/reproducing method according to claim 1, wherein the thermal distribution direction is a longitudinal direction of the thermal distribution determined by heating partially the recording medium.

13. (Previously Presented) An information recording/reproducing apparatus according to claim 3, wherein the orientation of the thermal distribution is a longitudinal direction of the thermal distribution determined by heating partially the recording medium.